



RELIEF VALVES

RVP & RVS Series

Parker Autoclave Brand: (PRVP & PRVS)

OPERATION AND MAINTENANCE MANUAL

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Series Model: **RELIEF VALVES: RVS & RVP Series**

Part Number: _____

Date of Purchase: _____

TABLE OF CONTENTS

PAGE

RVP & RVS Drawings: Dimensions, cutaway (Figures 1 & 2)	3
1.0 Introduction.....	4
2.0 Installation	4
3.0 Disassembly	4
4.0 Assembly	5
5.0 Set Pressure Adjustment	6
Additional Resources	8

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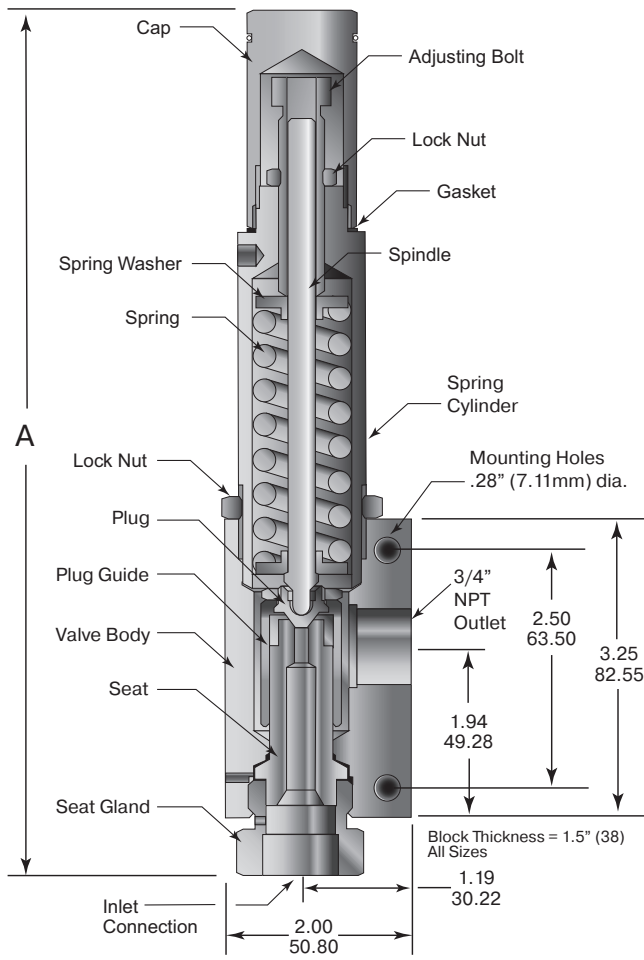


Figure 1
RVP Relief Valve

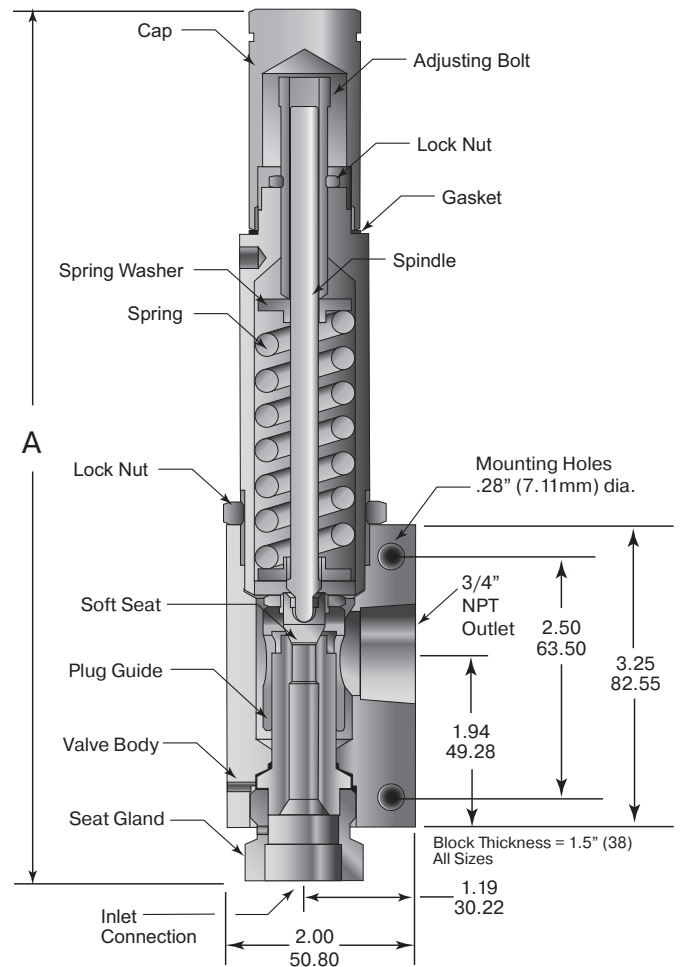


Figure 2
RVS Relief Valve

Section 1.0

Introduction

General Information

The Parker Autoclave Engineers' Service RVP & RVS Relief Valves for gas and liquid service are designed to protect systems and components against over-pressure and to reclose after normal pressure conditions are reached.

Safety

The Parker Autoclave Engineers Relief Valve is factory tested for structural integrity and functionality. The valve's relieving pressure is pre-set at the factory and is sealed with a wire tie to assure proper valve operation when installed. The valve is also tagged with set pressure and a maximum allowable working pressure and temperature. Note that the relief valve flow characteristics are defined at an allowable accumulation of 10% over set pressure. It is good engineering practice to further protect against over-pressure with a rupture disc of sizeable area.

Section 2.0

Installation

Inlet Piping

The relief valve should be mounted in the vertical position and secured with mounting screws (customer supplied). The inlet tubing to the valve should be unobstructed and as short as possible between the item being protected and the relief valve. Valves other than the relief valve should not be permitted in the relief line. Do not mount with outlet in upward position. The inlet tubing should have an inside diameter of at least that of the relief valve nozzle, but never less than the calculated minimum required relieving area. All tubing should be clean and free of foreign matter and the connection to the valve should be clean and well-lubricated with an anti-galling substance (e.g., Jet Lube SS-30) before installation. The inlet connection should be tightened to the recommended torque value listed in Parker Autoclave's Valve Fitting and Tubing Catalog.

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Outlet Piping

The discharge piping from the relief valve should be direct and unobstructed. Where possible, a short discharge pipe is desirable. However, if this is impractical, consideration of back pressure must be made by the customer. In any case, the discharge pipe should be at least the same inside diameter as the relief valve discharge port.

Section 3.0

Disassembly

NOTE: In the event that the valve needs to be disassembled for repairs, it should be sent back to the factory since the warranty will be voided if the cable seal is broken. The following procedures should only be used if the warranty has expired. Refer to Figure 1 for part locations on the RVP valve. For RVS valves, refer to Figure 2.

- 3.1 Cut the cable, then remove the cap.
- 3.2 Loosen the locknut on the adjusting bolt and turn the adjusting bolt counter-clockwise until all compression is relieved on the spring.
- 3.3 Loosen the spring cylinder locknut and remove the spring cylinder using a spanner wrench.
- 3.4 Remove the top spring washer, spring and the bottom spring washer from the shaft.
- 3.5 Remove the spindle from the plug.
- 3.6 Remove the plug and plug guide from the body.
- 3.7 Remove the plug from the plug guide by removing the locknut. For RVS relief valves, remove the locknut from the plug gland and unscrew the plug gland from the plug guide using a 1/4" allen wrench. Then, remove the plug from the plug guide.
- 3.8 Remove the seat gland and the seat.
- 3.9 Inspect all parts for damage, especially the seat and plug. Replace as required.

Section 4.0

Assembly

NOTE: Lubricate all threads with Jet Lube SS-30 or other appropriate lubricant. Refer to the Parker Autoclave Engineers VFT lubrication guide.

- 4.1 Place the valve body into a vise.
- 4.2 Insert the seat into the body and screw in the seat gland.
- 4.3 Torque the seat gland to 75 ft-lbs. (101.7 N.M)
- 4.4 Place the plug into the plug guide so the plug threads extend out of the top of the plug guide. For RVS valves, first place the plug in the plug guide as shown in Figure 2, then screw in the plug gland using a 1/4" allen wrench.
- 4.5 Tighten the locknut on the plug or plug gland **threads using a 1/4" hex wrench.**
- 4.6 Clean the seat and the plug/plug guide assembly.
- 4.7 Slide the plug guide on to the seat.
- 4.8 Take the spindle and place one of the spring washers on the spindle as shown in Figure 1. Be sure the flange on the spring washer faces upward toward the spring.
- 4.9 Assemble the spring on top of the spring washer along with the other spring washer. Be sure that the flange on the top spring faces downward. Set this assembly aside.
- 4.10 Thread the locknut all the way up on the spring cylinder threads.
- 4.11 Thread the locknut all the way on the adjusting bolt. Thread the adjusting bolt into the spring cylinder and adjust it in about 1/4".
- 4.12 Carefully inset the assembled spring and spring washers and spindle into the spring cylinder.
- 4.13 Carefully assemble this into the relief valve body, making sure that the spherical bottom of the spindle is resting in the cavity of the plug or plug gland (see Figure 1 & 2).
- 4.14 Tighten the spring cylinder into the relief valve body using a spanner wrench. It may be necessary to tap the spanner wrench with a hammer to insure tight contact between the spring cylinder and the relief valve body.
- 4.15 Tighten the locknut on the spring cylinder to 50 ft-lbs. (67.9 N.M)
- 4.16 The valve is now ready to have its' set pressure adjusted.

Section 5.0

Set Pressure Adjustment

NOTE: In order to accurately adjust the set pressure, an accurate pressure measurement device such as a transducer with digital readout or calibrated pressure gauge should be used.

- 5.1 Attach the valve inlet to the test bench.
- 5.2 Pressurize using nitrogen gas backed up by water until the valve opens fully. The set pressure is adjusted with the adjusting bolt. Turn the adjusting bolt until the valve opens at 5% over the set pressure.
- 5.3 After this setting is found, bring the pressure slowly up to the specified set pressure using nitrogen gas backed up by water while checking for leaks through the seat with Leak-Tec. The seat should begin to bubble at the specified cracking pressure. If it does not, vent the pressure from the valve, readjust the bolt and repeat steps 5.2 and 5.3. Proceed to step 5.4 if the cracking pressure is correct.
- 5.4 Vent all pressure from the system and repeat step 5.3 to verify that the pressure is consistent.
- 5.5 The set pressure should be marked on a tag and attached to the valve.
- 5.6 Once the valve has been set, tighten the locknut on the adjusting bolt.
- 5.7 Place the gasket into the counterbore provided in the cap. Torque the cap to 50 ft-lbs. (67.9 N.M)
- 5.8 Expected accuracy once instructions are followed: +/- 3% of set pressure

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Additional Resources...

		
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Parker Hannifin Corporation
Instrumentation Products Division

Autoclave Engineers Operation
8325 Hessinger Drive
Erie, PA 16509
phone 814 860 5700
fax 814 860 5811
autoclave.com | parker.com/ipd

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Operation and Maintenance Manual

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